

The type specimens of Orthoptera described by American entomologists in the collection of the Muséum d'histoire naturelle de Genève

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The Muséum d'histoire naturelle de Genève (MHNG) collection, which includes that of Henri de Saussure, contains many type specimens of Orthoptera from the Americas. Most of these were deposited by the North American entomologists Lawrence Bruner and Morgan Hebard, who received loans from or worked directly on the collection, even though their main collections are deposited in North American institutions. The eighty five species or sub-species described by American entomologists and represented by type specimens in the MHNG collection are here listed by family; the number, sex and type status of the specimens is given, along with the depository of the holotype or lectotype if it is not in the MHNG collection.

Keywords: Acrididae - Tetrigidae - Joseph Hancock - Samuel Scudder.

INTRODUCTION

The Muséum d'histoire naturelle de Genève (MHNG) collection is important for American entomologists because it contains the collection of, and material studied by, Henri de Saussure (1829-1905). Saussure travelled in the West Indies, Mexico and the United States in 1854-1856, and described many Orthoptera species using the specimens he collected (Saussure, 1859, 1861). His interest in the region was lasting (Hollier & Hollier, 2013), and towards the end of his career he was responsible for the first Orthoptera volume of the series *Biologia Centrali-Americana*, edited by Frederick DuCane Godman (1834-1919) and Osbert Salvin (1835-1898). It is therefore, not surprising that type specimens from some of the other important names in North American entomology have ended up in the MHNG collection.

The second Orthoptera volume of the *Biologia Centrali-Americana* (published in parts between 1900 and 1909) was largely the work of Lawrence Bruner (1856-1937). In the introduction Bruner states that Saussure loaned him types of some of the species he (Saussure) had described and this probably accounts for the fact that in some instances a couple of specimens from an apparent series have been labelled as types while others have not (i.e. only those specimens that were loaned have the label). It

would appear that some unidentified material was also sent to Bruner because he based some of his descriptions on specimens from the MHNG. When these specimens were returned, it was common practice to donate syntypes of some other species with long type series to the lending institution's collection.

Morgan Hebard (1887-1946) was invited to study some of the specimens collected during the expedition of Jean Carl (then curator of arthropods at the MHNG) and Konrad Escher to central India in 1926-1927. The many Hebard determination labels in the collection suggest that he visited the MHNG, but the correspondence between Carl and Hebard preserved in the MHNG archives does not explicitly mention this. The correspondence does show that considerable exchanges of material were made, which explains the many specimens from Hebard's own collection in the MHNG and the presence of Saussure syntypes in the Academy of Natural Sciences of Philadelphia (ANSP) collection. Hebard's collection included that of Joseph Hancock (1864-1922), and many specimens from his long-term collaborator James Rehn (1881-1965), and Hebard exchanged some of these type specimens as well. Hebard labelled all of these specimens from his collection as paratypes, but the earlier ones were actually syntypes (although most of these are now paralectotypes).

There are also a few type specimens of species described by Samuel Scudder (1837-1911), identified as types by a printed label "Scudder's Type 18--" (as mentioned by Rehn & Hebard, 1912: 67). It is not clear when these came to the MHNG and it is possible that these too came from Hebard's collection, given the mention of the labels by the latter. However, it is noticeable that all of the species represented were described early in Scudder's career, implying that they were sent earlier.

A few other North American specialists have left specimens in the MHNG collection, either sent with returned loans or donated on visits to study the rich holdings.

ARRANGEMENT

The species names are arranged by family. The author and publication, original generic placement, the number and sex of type specimens in the MHNG collection, the location of the holotype or lectotype if not in the MHNG and the current nomenclatural combination are given. The nomenclature and systematics follow Eades *et al.* (2013).

The following abbreviations are used for type depositories:

- ANSP Academy of Natural Sciences, Philadelphia
- BMNH Natural History Museum, London
- CSCA California State Collection of Arthropods, Sacramento
- MHNG Muséum d'histoire naturelle, Geneva
- NHMW Naturhistorisches Museum Wien, Vienna
- NMNH Smithsonian Institution, Washington
- OXUM Oxford University Museum of Natural History, Oxford
- UNSM University of Nebraska, Lincoln
- ZMHB Museum für Naturkunde der Humboldt-Universität, Berlin

CATALOGUE OF TYPE SPECIMENS

CAELIFERA

Ripterygidae

nodicornis Hebard, 1924a: 228 [*Ripteryx*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Ripteryx nodicornis Hebard, 1924

Acrididae

alticola Hebard, 1923b: 214 [*Scyllina*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Rhammatocerus alticola (Hebard, 1923)

annectens Hebard, 1923b: 202 [*Cumarala*].

One ♂ paratype. The holotype is in the ANSP.

Orphula annectens (Hebard, 1923)

balloui Rehn, 1905a: 178 [*Orphulella*].

One ♀ syntype. There are further syntypes in the ANSP.

Orphulina balloui (Rehn, 1905)

bicolor Bruner, 1908: 260 [*Inusia*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 119) is in the ANSP.

A junior synonym of *Stenopola dorsalis* (Thunberg, 1827)

bowditchi canus Hebard, 1925a: 120 [*Melanoplus*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Melanoplus bowditchi canus Hebard, 1925

calapooyae Hebard, 1920: 385 [*Phoelaliotes*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

A junior synonym of *Melanoplus validus* Scudder, 1898

carlinianus strepitus Rehn, 1921: 174 [*Aerochoreutes*].

Two ♀ paratypes. The holotype is in the ANSP.

Circotettix strepitus (Rehn, 1921)

caroli Gurney & Helfer in Gurney, 1960: 150 [*Melanoplus*].

One ♂ and one ♀ paratype. The holotype is in the NMNH.

Melanoplus caroli Gurney & Helfer, 1960

ceratiola Hubbell & Walker, 1928: 2 [*Schistocerca*].

Two ♂ and two ♀ paratypes. The holotype is in the NMNH.

Schistocerca ceratiola Hubbell & Walker, 1928

chocoensis Hebard, 1923b: 247 [*Opshomala*].

One ♂ paratype. The holotype is in the ANSP.
Stenacris fissicauda chocoensis (Hebard, 1923)

communis Bruner, 1904: 56 [*Silvitettix*].

Two ♂ and two ♀ paralectotypes. The lectotype (designated by Rehn & Hebard, 1912: 110) is in the ANSP.

Silvitettix communis Bruner, 1904

conspersa Scudder, 1875b: 514 [*Arphia*].

One ♀ syntype. There are further syntypes in the ANSP.

Arphia conspersa Scudder, 1875

conspersus Bruner, 1900: 76 [*Dichroplus*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Liebermann, 1966: 98) is in the UNSM.

Dichroplus conspersus Bruner, 1900

costaricensis Bruner, 1904: 82 [*Orphulella*].

One ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 66) is in the ANSP.

A junior synonym of *Orphulella punctata* (De Geer, 1773)

cupido Bruner, 1904: 88 [*Phaneroturis*].

♂ holotype.

Phaneroturis cupido Bruner, 1904

davisi Hebard, 1918: 153 [*Eotettix*].

One ♀ paratype. The holotype is in the ANSP.

Melanoplus davisi (Hebard, 1918)

digitifera Hebard, 1923b: 289 [*Chibchacris*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Chibchacris digitifera Hebard, 1923

eumera Hebard, 1923b: 249 [*Oxyblepta*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Stenopola puncticeps eumera (Hebard, 1923)

furcata Hebard, 1923b: 291 [*Chibchacris*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Chibchacris furcata Hebard, 1923

glaucipes Rehn, 1906: 34 [*Staurorhectus*].

One ♀ paratype. The holotype is in the ANSP.

Notopomala glaucipes (Rehn, 1906)

goethalsi Hebard, 1924b: 117 [*Opshomala*].

One ♀ paratype. The holotype is in the ANSP.

Stenacris fissicauda goethalsi (Hebard, 1924)

gracilis Bruner, 1908: 340 [*Rhachicreagra*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 122) is in the ANSP.

Rhachicreagra gracilis Bruner, 1908

halophila Rehn & Hebard, 1916: 166 [*Orphulella*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

A junior synonym of *Orphulella pelidna* (Burmeister, 1838)

harperi Gurney & Buxton, 1965: 4 [*Melanoplus*].

One ♂ and one ♀ paratype. The holotype is in the CSCA.

Melanoplus harperi Gurney & Buxton, 1965

herbaceus Bruner, 1905: 142 [*Encoptolophus*].

One ♂ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 115) is in the ANSP.

A junior synonym of *Encoptolophus otomitius* (Saussure, 1861)

insignis Hebard, 1923b: 189 [*Amblytropidia*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

A junior synonym of *Amblytropidia trinitatis* Bruner, 1904

luteola Scudder, 1875b: 515 [*Arphia*].

One ♀ syntype. There are further syntypes in the ANSP.

A junior synonym of *Arphia simplex* Scudder, 1875

marschalli Bruner, 1908: 256 [*Arnilia*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 119) is in the ANSP.

A junior synonym of *Stenacris vitreipennis* (Marschall, 1836)

melanopleura Hebard, 1923b: 205 [*Orphulella*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

A junior synonym of *Orphulella losamatensis* Caudell, 1909

meridionalis Bruner, 1908: 271 [*Anniceris*].

One ♂ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 120) is in the ANSP.

Ampelophilus meridionalis (Bruner, 1908)

microtatus Hebard, 1919: 285 [*Melanoplus*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Melanoplus microtatus Hebard, 1919

miniatula Rehn, 1905b: 423 [*Dellia*].

One ♀ syntype. There are further syntypes in the ANSP.

Lithoscirtus miniatulus (Rehn, 1905)

modesta Bruner, 1908: 288 [*Leptomerinthoprora*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 120) is in the ANSP.

A junior synonym of *Leptomerinthoprora brevipennis* Rehn, 1905

mono Rehn, 1964: 11 [*Hebardacris*].

One ♂ and one ♀ paratype. The holotype is in the NMNH.

Hebardacris mono Rehn, 1964

nothra Rehn, 1905b: 444 [*Rhachicreagra*].

One ♂ and one ♀ syntype. There are further syntypes in the ANSP.

Rhachicreagra nothra Rehn, 1905

nudus Scudder, 1878: 77 [*Pezotettix*].

One ♀ syntype. There is at least one further syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

A junior synonym of *Paraidemona punctata* (Stål, 1878)

paraguayensis Rehn, 1906: 36 [*Isonyx*].

One ♀ syntype. There are further syntypes in the ANSP.

Orphulella paraguayensis (Rehn, 1906)

picta Scudder, 1877: 31 [*Trimerotropis*].

One ♂ paralectotype. The lectotype (designated by Otte, 1984: 151) is in the ANSP.

Spharagemon marmorata picta (Scudder, 1877).

polia Hebard, 1923b: 297 [*Rhytidochrota*].

One ♀ and one juvenile ♂ paratype. The holotype is in the ANSP.

Rhytidochrota polia Hebard, 1923

pratensis Bruner, 1904: 84 [*Parachloebata*].

♀ holotype. There are many more specimens in the same series as the holotype in the MHNG, but apparently only one specimen was sent to Bruner.

A junior synonym of *Orphulella scudderi* (Bolivar, 1888)

pulchella Hebard, 1925b: 288 [*Sinaloa*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Sinaloa pulchella Hebard, 1925

smaragdipes Bruner, 1908: 287 [*Leptomerinthoprora*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 120) is in the ANSP.

A junior synonym of *Leptomerinthoprora brevipennis* Rehn, 1905

steini Rehn, 1914: 122 [*Pteropera*].

Two ♀ paratypes. The holotype is in the ZMHB.

Pteroperina steini (Rehn, 1914)

tenuis Hebard, 1923b: 303 [*Opaonella*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Opaonella tenuis Hebard, 1923

viatorius cyanomera Hebard, 1923b: 212 [*Scyllina*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Rhammatocerus viatorius cyanomerus (Hebard, 1923)

viridis Scudder, 1862: 455 [*Chloealtis*].

One ♀ syntype. There is at least one further syntype in the ANSP.

Dichromorpha viridis (Scudder, 1862)

viridulus Bruner, 1908: 269 [*Anniceris*].

One ♀ paratype. The holotype does not appear on the BMNH online database and its whereabouts is apparently unknown.

Tela viridula (Bruner, 1908)

vitripenne Bruner, 1904: 69 [*Thyripton*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 69) is in the ANSP.

Orphula vitripenne (Bruner, 1904)

Episactidae

lithocolletus Rehn & Rehn, 1934: 14 [*Gymnotettix*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Gymnotettix lithocolletus Rehn & Rehn, 1934

Eumastacidae

californica dumicola Rehn & Hebard, 1918: 229 [*Morsea*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Morsea dumicola Rehn & Hebard, 1918

lita Hebard, 1923b: 185 [*Santanderia*].

One ♂ and one juvenile paratype. The holotype is in the ANSP.

Santanderia lita Hebard, 1923

Romaliidae

femorata Bruner, 1907: 245 [*Taeniophora*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1912: 119) is in the ANSP.

Taeniophora femorata Bruner, 1907

gracilis Hebard, 1924a: 210 [*Phaeoparia*].

One ♀ paratype. The holotype is in the ANSP.

A junior synonym of *Maculiparia rotundata carrikeri* (Hebard, 1923)

juncorum Berg in Pictet & Saussure, 1887: 356 [*Zoniopoda*].

♂ lectotype (designated by Carbonell, 2007: 24) and two ♂ and two ♀ paralectotypes. There are further paralectotypes in the NHMW.

Zoniopoda juncorum Berg, 1887

Tetrigidae

attenuatus Hancock, 1904: 151 [*Hedotettix*].

One ♂ and one ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Hedotettix attenuatus Hancock, 1904

bigibbosus Hancock, 1900: 3 [*Tetticerus*].

One ♂ and one ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Pterotettix bigibbosus (Hancock, 1900)

carli Hebard, 1930: 569 [*Gavialidium*].

♀ Holotype.

Gavialidium carli Hebard, 1930

cornutus Hancock, 1900: 6 [*Notocerus*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn, 1929: 492) is in the ANSP.

Notocerus cornutus Hancock, 1900

corpulentus Hancock, 1912: 158 [*Euparatettix*].

One ♂ and one ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

A junior synonym of *Euparatettix variabilis* (Bolivar, 1887)

costatus Hancock, 1912: 150 [*Hedotettix*].

Two ♂ and two ♀ syntypes. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Hedotettix costatus Hancock, 1912

crassipes Hancock, 1912: 153 [*Indatettix*].

Two ♂ and two ♀ syntypes. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Ergatettix crassipes (Hancock, 1912)

eurycephalus brevipennis Hancock, 1902: 100 [*Apotettix*].

One ♂ and one ♀ syntype. There is at least one further syntype in the ANSP.

Paratettix brevipennis (Hancock, 1902)

extenuatus Hancock, 1906: 91 [*Stenodorsus*].

Three ♂ and three ♀ syntypes. There is at least one further syntype in the ANSP.

Stenodorsus extenuatus Hancock, 1906

humilis Hebard, 1930: 568 [*Deltonotus*].

♀ Holotype and three ♀ paratypes.

Deltonotus humilis Hebard, 1930

interruptus lobulatus Hancock, 1915: 129, 130 [*Indatettix*].

One ♀ syntype.

Probably a junior synonym of *Ergatettix interuptus* (Brunner von Wattenwyl, 1893) [not mentioned by Eades *et al.* (2013)]

latifrons Hebard, 1930: 578 [*Criotettix*].

One ♂ paratype. The holotype is in the ANSP.

Criotettix latifrons Hebard, 1930

longipennis mutabilis Hancock, 1909: 413 [*Tetrix*].

One ♂ paralectotype. The specimen has been labelled as “longipennis dimorpha Hancock” by Hebard, but the locality “Victoria Australia” agrees with that given by Hancock in his description of the variety of *T. longipennis*. The ♂ lectotype (designated by Key, 1981: 51), is in the OXUM.

A junior synonym of *Paratettix argillaceus* (Erichson, 1842)

longipes Hancock, 1906: 87 [*Amphibotettix*].

One ♂ and one ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Amphibotettix longipes Hancock, 1906

marcapata Hancock, 1907b: 44 [*Otumba*].

One ♂ and two ♀ syntypes. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Otumba marcapata Hancock, 1907

minutus Hancock, 1902: 134 [*Paratettix*].

One ♂ syntype. There is at least one other syntype in the ANSP.

A junior synonym of *Paratettix azetcus* (Saussure, 1861)

oculatus magnus Hancock, 1907a: 221 [*Criotettix*].

One ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Eucriotettix magnus (Hancock, 1907)

similis Hancock, 1907a: 238 [*Euparatettix*].

One ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Euparatettix similis Hancock, 1907

spinilobus Hancock, 1904: 129 [*Criotettix*].

One ♀ syntype. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

Eucriotettix spinilobus (Hancock, 1904)

tectatus Hebard, 1923a: 350 [*Misythus*].

One ♀ paratype. The holotype is in the ANSP.

Misythus tectatus Hebard, 1923

tenuis Hancock, 1912: 153 [*Euparatettix*].

Two ♂ and three ♀ syntypes. There is at least one other syntype, referred to as the holotype by Eades *et al.* (2013), in the ANSP.

A junior synonym of *Euparatettix variabilis* (Bolivar, 1887)

ENSIFERA

Gryllidae

gracilis Rehn, 1918: 210 [*Aphemogryllus*].

One ♀ paratype. The holotype is in the ANSP.

Aphemogryllus gracilis Rehn, 1918

Tettigoniidae

concinnum Scudder, 1862: 452 [*Orchelimum*].

One ♂ and one ♀ paralectotype. The lectotype (designated by Rehn & Hebard, 1915: 60) is in the ANSP.

Orchelimum concinnum Scudder, 1862

ictum Scudder, 1875a: 461 [*Xiphidium*].

One ♂ syntype. There are at least two other syntypes in the ANSP.

Conocephalus ictus (Scudder, 1875).

paraguayensis Rehn, 1907: 385 [*Turpilia*].

One ♀ syntype. There are further syntypes in the ANSP.

A junior synonym of *Ceraia similis* Caudell, 1906

robusta Rehn, 1914: 156 [*Horatosphaga*].

One ♀ paratype. The holotype is in the ZMHB.

A junior synonym of *Horatosphaga leggei* (Kirby, 1909)

sinaloae Hebard, 1925: 293 [*Insara*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Insara sinaloae Hebard, 1925

sinaloae Rehn & Hebard, 1920: 240 [*Rehnia*].

One ♀ paratype. The holotype is in the ANSP.

Neobarrettia sinaloae (Rehn & Hebard, 1920)

tridactyla Rehn & Hebard, 1914: 149 [*Dichopetala*].

One ♂ and one ♀ paratype. The holotype is in the ANSP.

Dichopetala tridactyla Rehn & Hebard, 1914

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